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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,520

09/28/2006

Philippe Tailhades

128360

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7590

07/07/2009

OLIFF & BERRIDGE, PLC

P.O. BOX 320850

ALEXANDRIA, VA 22320-4850

EXAMINER

BRYANT, MICHAEL C

ART UNIT

PAPER NUMBER

2884

MAIL DATE

DELIVERY MODE

07/07/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/582,520	<b>Applicant(s)</b> TAILHADES ET AL.	
	<b>Examiner</b> CASEY BRYANT	<b>Art Unit</b> 2884	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/13/09, 8/28/06</u>  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of Claims***

1. Applicant's reply, filed 4/22/2009, has been received and entered.

Claims 1, 3-5, 7-9 and 11-16 have been amended.

No claims have been cancelled.

No new claims have been added.

Thus, claims 1-16 remain currently pending in this application.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) filed 8/26/2006 has been considered.

### ***Response to Arguments***

3. Applicant's arguments filed 4/22/2009 have been fully considered but they are not persuasive.

4. Regarding claims 1-4, 8 and 9, the Applicant argues that Coron fails to anticipate the claims because it does not teach all of the claimed element limitations. Specifically, the Applicants argue that Coron fails to recite a device and method of detection comprising converting a change in temperature produced from IR radiation into a change in resistivity in a sensing element. However, the Examiner points to page 1, lines 29-33 and page 2, lines 29-34 of the Coron reference, where Coron describes the iron oxide/ferrite performing as a diluted resistive medium, wherein the plasma frequency is proportional to the free carrier relieving time-constant. It is known in the art that the plasma frequency (Langmuir waves) of a material is directly dependent on the temperature of the material. Thermal radiation absorbed by the material causes the plasma frequency to fluctuate (see "Appendix B"). Furthermore, rate of time in which free carriers are relieved is related to the resistance

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of the material. Therefore, the IR radiation absorbed by the sensing element produces a change temperature of the element, affecting the plasma frequency and, in turn, the resistance of the element.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1–4, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Coron (FR 2 150 608).

With respect to claims 1-4, 8 and 9, Coron discloses a system and method for bolometric detection of IR radiation comprising: providing a sensitive material of the formula  $\text{Ni}_{0.9}\text{Fe}_{0.1}\text{Fe}_2\text{O}_4$  (Examples 1 and 2), depositing the material as a thin film to form a sensor (20 $\mu\text{m}$ )(p. 2, lines 10-11), and converting a change in temperature from heat produced by the IR radiation to a change in resistivity of the thin film (the plasma frequency, which known to depend on temperature, is dependent on the free carrier time constant, related to the resistivity, of the material) (p. 2, lines 29-34).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having

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ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 6, 7, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coron (French Patent FR 2 150 608) in view of Tu (US 6,359,276).

Regarding claim 6, 13 and 14, Coron discloses the sensor of claim 4, but does not disclose a plurality of the sensors in the form of an array of pixels. Tu discloses an infrared detector comprising an array of pixels (col. 1, lines 7-10). It would have been obvious to one of ordinary skill in the art the time of the invention to provide an array of sensor elements, as taught by Tu, in order to form an imaging plane to perform IR imaging.

Regarding claims 7, 15 and 16, Tu discloses the array as integrated in with CMOS circuitry (col. 3, lines 10-13).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coron (FR 2 150 608) in view of Endo (US 5,962,854).

With respect to claims 5, Coron discloses a bolometer, but does not specifically disclose the device inserted in a package having a IR transparent window. Endo discloses a IR sensitive bolometer film arranged in a package on a membrane and configured to receive IR radiation through an IR -transparent window (Figures 7-8; col. 14, line 43 – col. 15, line 65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the bolometer of Coron in a package on membrane, as taught by Endo, in order to isolate the sensor from thermal noise and protect it from external damage.

10. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coron (FR 2 150 608) in view of Endo (US 5,962,854) and Tu (US 6,359,276).

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With respect to claim 10, Coron does not specifically disclose a device having an array of pixels. Tu discloses an infrared detector comprising an array of pixels (col. 1, lines 7-10). It would have been obvious to one of ordinary skill in the art the time of the invention to provide an array of sensor elements, as taught by Tu, in order to form an imaging plane to perform IR imaging.

With respect to claim 11, Tu discloses the array as integrated in with CMOS circuitry (col. 3, lines 10-13).

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CASEY BRYANT whose telephone number is (571)270-1282. The examiner can normally be reached on Monday - Friday, 8am - 5pm, EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Constantine Hannaher/  
Primary Examiner, Art Unit 2884**

Casey Bryant  
Examiner